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### The prince and the professor

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## Improving mortality of coronary surgery

### Study conclusions are paradoxical

EDITOR—The findings of the study by Bridgewater et al of improving mortality of coronary surgery over the first four years of independent practice in 15 surgeons are relevant and clinically important.<sup>1</sup> But aren't the conclusions paradoxical?

The authors report that mortality in patients operated on by newly appointed consultant surgeons is similar to mortality in patients operated on by established consultants. Yet new consultants experience a halving in mortality after four years when they become established consultants. The reason is that Bridgewater et al used their peers as the benchmark to qualify the first statement, and their own results for the second.

This modest group of surgeons have underplayed their own good results that become excellent after four years; the final ratio of observed mortality to expected mortality of 0.36 compared with the additive EuroSCORE is impressive. Unfortunately, this affects the conclusions. The advantage that the authors used themselves as a benchmark for established consultants offers a more valid comparison. Case selection, operative performance, and management of postoperative complications will inevitably be more similar. If so, the conclusions would say that mortality in patients operated on by newly appointed consultants is twice that of established surgeons (the authors using themselves as internal controls).

The real yardstick would be the next 15 newly appointed surgeons to the Northwest region comparing their results with established surgeons, as these new consultants would compare their initial results with a lower Northwest average (because of the contribution of this excellent newly appointed cohort). In this way a more accurate comparison

would be obtained to determine if the results of newly appointed surgeons are on a par with their established peers.

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Competing interests: None declared.

<sup>1</sup> Bridgewater B, Grayson AD, Au J, Hassan R, Dihmis WC, Munsch C, et al. Improving mortality of coronary surgery over first four years of independent practice: retrospective examination of prospectively collected data from 15 surgeons. *BMJ* 2004;329:421. (21 August.)

### Data analysis was not robust

EDITOR—Bridgewater et al present data and draw conclusions that are incompatible.<sup>1</sup> In their study new consultants not only performed as well as their senior colleagues in general (observed mortality *v* expected mortality is 0.61 *v* 0.66) but considerably outperformed them in years 3 and 4. The authors attributed this improved performance by new consultants to a learning curve. Interestingly, this trend was not observed in high risk cases. This contradicts conventional wisdom. The data analysis by Bridgewater et al was not robust enough to compare the two groups of surgeons accurately.

Data from new consultants may have been more non-homogeneous than those from senior surgeons in terms of surgical techniques such as off-pump surgery, myocardial protection, etc. EuroSCORE is inadequate to compare a non-homogeneous mixture of surgical practice as it was developed when surgical practice was more uniform.

An alternative and more scientific approach would have been through logistic regression with variables for different surgical techniques and computing propensity scores. Quintile stratification of propensity scores would have shown the variability in surgical practice. Propensity score matching of patients would have offered a more uniform method of comparison. Odds ratios from a secondary logistic regression on matched pairs of patients would have offered an accurate method of comparing the performance of the two groups of surgeons.

Some in the specialty fear that the learning curve may be obvious in high risk, non-coronary surgery. A similar study on non-coronary surgery is now imperative to address its implications for patients' confidence and surgeons' training.

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<sup>1</sup> Bridgewater B, Grayson AD, Au J, Hassan R, Dihmis WC, Munsch C, et al. Improving mortality of coronary surgery over first four years of independent practice: retrospective examination of prospectively collected data from 15 surgeons. *BMJ* 2004;329:421. (21 August.)

### Authors' reply

EDITOR—We dispute that the data presented and conclusions drawn are incompatible or that there is a paradox. We have some specific responses to the points raised.

We set out to test the hypothesis that there was improvement in surgeon performance after appointment to independent practice, which was indeed detected by our observations. This was seen on crude mortality but was more noticeable after risk adjustment. We accept that all risk adjustment methods have limitations and acknowledged that in our manuscript. To understand whether "new" surgeons perform as well as older surgeons seems a valid hypothesis to test, and that is why we chose to undertake this comparison by using two groups.

The fact that the mortality seen during the fourth year of practice is lower than that of more established consultants is an interesting finding and one that we cannot answer from our existing studies. It may be down to "true" surgical factors (implying suboptimal performance in some more experienced surgeons) or may be due to limitations of existing risk models.

We agree with Reddy that a need exists for this type of study in non-coronary surgery, but we disagree with his views about alternative techniques of analysis. Whether surgeons operate on-pump or off-pump or use multiple arterial grafts is down to surgical preference. The literature is still not decisive on the benefits of either approach. The hypotheses we were testing were not to look at the influence of these factors, and to correct for them as he suggests would not have helped us to reach clearer conclusions.

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## Performance monitoring should take costs to heart

EDITOR—The three papers on the performance of cardiac surgeons in the issue of 21 August show that expertise combined with statistical thinking can lead to rational performance monitoring without bullying overtones, disputed targets, or misconceived “naming and shaming.”<sup>1–5</sup>

Publicly naming individual surgeons as “not meeting” even the 99.99% standard proposed by Keogh et al remains problematic if the underlying problem is commonly discovered to be specific to a process or organisation rather than a surgeon.<sup>5</sup> Until an empirical database exists that clearly persuades cardiac surgeons and the public that resolutions from “taking a closer look” under the proposed new monitoring scheme are more likely to be surgeon specific than institutional, politicians and others should not publicly name the surgeons whose results trigger taking a closer look. Instead, report only that a closer look is being taken, the results being fairly and frankly reported at a specified date. The Healthcare Commission should also reserve the right to take a closer look, randomly as well as responsively.

Cost effectiveness was missing in all of the papers.<sup>5</sup> How much did the original review of data quality in 10 units cost, how much did the national clinical audit support programme in the NHS Information Authority invest to incorporate and augment the Society of Cardiothoracic Surgeons’ database, and how much does the appointment of local data managers cost annually? What are the annual costs of flagging patients for mortality, of analysing data and validating results? Why—if a performance monitoring protocol was in place, as recommended<sup>5</sup>—was the implementation phase so underestimated that the first data trickled into the central cardiac audit database in October 2003, too late for the production of validated, risk adjusted, surgeon specific results in 2004?

The effectiveness of performance monitoring is more difficult to measure than its costs, but costly performance monitoring should be designed so that effectiveness can be measured—one of 11 key recommendations of the Royal Statistical Society’s working party on performance monitoring in the public services.<sup>5</sup>

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Competing interests: None declared.

- 1 Bridgewater B, Grayson AD, Au J, Hassan R, Dihmis WC, Munsch C, et al. Improving mortality of coronary surgery over first four years of independent practice: retrospective examination of prospectively collected data from 15 surgeons. *BMJ* 2004;329:421. (21 August.)
- 2 Zamvar V. Reporting systems for cardiac surgery. *BMJ* 2004;329:413–4. (21 August.)
- 3 Keogh B, Spiegelhalter D, Bailey A, Roxburgh J, Magee P, Hilton C. The legacy of Bristol: public disclosure of individual surgeons’ results. *BMJ* 2004;329:450–4. (21 August.)
- 4 Campbell NC, Murchie P. Treating hypertension with guidelines in general practice. *BMJ* 2004;329:523–4. (4 September.)

<sup>5</sup> Royal Statistical Society Working Party on Performance Monitoring in the Public Services. Performance indicators: good, bad, and ugly. Available at: [www.rss.org.uk/archive/performance/index.html](http://www.rss.org.uk/archive/performance/index.html)

## Bypass surgery mortality is blunt measure of performance

EDITOR—Kmietowicz reports that UK heart surgeons are among the best in the world as measured by crude mortality of isolated coronary artery bypass surgery.<sup>1</sup> This marker of surgical performance is widespread.

Imagine the following scenario. A patient undergoing isolated bypass grafting has an uneventful procedure. During closure, the systemic blood pressure drops, and the electrocardiogram shows that the patient is becoming ischaemic. Cardiopulmonary bypass is reintroduced rapidly, but a further attempt to wean from circulatory support is unsuccessful. The surgeon, who is subject to mandatory reporting of such cases, notes the small and insignificant jet of mitral regurgitation seen on the intraoperative transoesophageal echo. He readministers cardioplegia and performs a mitral valve repair. The patient dies, but the death is not recorded on the surgeon’s ledger, as no longer is the procedure an isolated coronary artery graft case.

Corridor whispers imply that the above vignette has occurred. I have written previously on the potential negative consequences of mandatory performance reporting.<sup>2</sup> Patients will continue to be at risk of being denied potentially life saving surgery or worse, be inappropriately managed intra-operatively while such blunt tools are used.

I am not opposed to my outcomes being examined, but risk adjusted audit of my total practice is the minimum standard that is acceptable. This would go some way to lessen the potential for harm for cardiothoracic surgeons but also, more importantly, for their patients.

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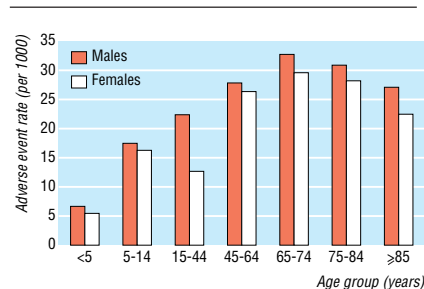
Competing interests: None declared.

- 1 Kmetowicz Z. UK heart surgeons are among the best in the world. *BMJ* 2004;329:644. (18 September.)
- 2 Gilfillan IS. Ranking heart surgeons has pitfalls. *BMJ* 2003;327:107–b.

## Adverse events reporting in English hospital statistics

### Vague numbers are being perpetuated

EDITOR—Aylin et al write in their Dr Foster’s case notes that about 850 000 medical errors occur in NHS hospitals every year, resulting in 40 000 deaths.<sup>1</sup> They reference this to a PowerPoint presentation (itself unreferenced) given in Australia in 2001. The figures appear in *Organisation with a Memory* (2000).<sup>2</sup> In fact, the original reads, “an estimated 850 000 (range 300 000 to 1.4 million) adverse events might occur



Rates of adverse events by age and sex (Hospital Episode Statistics 1999-2000 to 2002-3)

each year in the NHS hospital sector ... some adverse events will be inevitable complications of treatment.”

These figures are an extrapolation of two studies, an American study in 1991, which found that 3.7% of inpatient events led to harmful adverse events, and an Australian study, which gave a result of 16.6%.<sup>3,4</sup> The Department of Health averaged out these two figures and applied the result to the number of annual admissions to NHS hospitals. In this way, we have been saddled with this estimate of 850 000 errors that the media and politicians castigate us with.

The National Patient Safety Agency’s website currently says that 900 000 events are either harming or nearly harming patients every year (note that it includes near misses). As the Dr Foster unit found only 2.2% of episodes including a code for an adverse event (less than either the United States or Australia), can we look forward to the end of this often quoted 850 000 figure?

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Competing interests: None declared.

- 1 Aylin P, Tanna S, Bottle A, Jarman B. Dr Foster’s case notes. How often are adverse events reported in English hospital statistics? *BMJ* 2004;329:369. (14 August.)
- 2 Department of Health. *An organisation with a memory*. London: DoH, 2000:11 (chapter 2, table 2.2).
- 3 Brennan TA, Leape LL, Laird NM, Hebert L, Localio AR, Lawthers AG, et al. Incidence of adverse events and negligence in hospitalized patients; results of the Harvard medical practice study 2. *N Engl J Med* 1991;324:377–84.
- 4 Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Hamilton JD. Quality in Australian health care study. *Med J Aust* 1995;163:4:58–471.

### No data were produced

EDITOR—No one should underestimate the real risks of hospital treatment and in particular of emergency surgery for elderly patients. Adverse events in hospital are under-recorded, but it should be recognised that most complications are not due to medical blunders, and more often than not mistakes are a potential, rather than an actual, threat to the lives of patients. Recording mistakes should be transparent and effective in reducing the level of risk to patients.

The publication by the Dr Foster team does not produce any data on hospital deaths but quotes as a reference a conference report in 2001.<sup>1</sup> Adverse events have been interpreted as an “unintended injury caused by medical management rather than a disease process, resulting in death, life threatening ill-



ness, disability at the time of discharge, or a prolongation of hospital stay.”

However, on subsequent clarification, the diagnostic codes used in this study seem to include inevitable and expected events. Hospital episode statistics are at best difficult to interpret, and, although considerable efforts are being made to improve the validity of these data, they should be interpreted with considerable caution. The alarming headline in the *Times* is not based on established fact,<sup>2</sup> and, although the Dr Foster organisation is committed to putting the available data on medical care in the public arena, the figure of 40 000 patients killed by hospital blunders is not substantiated.

Furthermore, no evidence has been advanced that mistakes in the NHS are any more common than in any other healthcare system. The medical profession continues to improve the quality and safety of care to an increasingly elderly population, and surgeons are anxious to reduce potentially preventable deaths to an absolute minimum. The surgical community can reassure patients that their safety is our number one priority, but we are not complacent and are constantly striving to do better.

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Competing interests: TB is fed up with Dr Foster.

- 1 Aylin P, Tanna S, Bottle A, Jarman B. Dr Foster's case notes. How often are adverse events reported in English hospital statistics? *BMJ* 2004;329:369. (14 August.)
- 2 Blundering hospitals are killing 40 000 patients a year. *Times* 2004 Aug 13.

### Data relevant to patient safety should not be presented alone and out of context

EDITOR—The publication of Dr Foster's case notes has generated considerable interest,<sup>1</sup> but accurately quantifying patient safety incidents is difficult. Methods of intensive case note review provide estimates of adverse events in acute hospitals that range from 2.9% to 16.6%, but definitions, methods, and health systems vary.<sup>2,3</sup>

The National Patient Safety Agency fully supports Dr Foster's conclusion that hospitals should be encouraged to report incidents. However, a full picture of patients' safety is not possible from any one data source: information is needed from a range of sources for an accurate picture.

Furthermore, Dr Foster's analysis tells us nothing about what we need to change to improve safety. Including data from systems that collect information on causes and prevention will be needed to support improvement in patient safety.

The National Patient Safety Agency has developed a national reporting and learning system to enable healthcare staff to report incidents anonymously. It is also setting up a patient safety observatory to draw together patient safety information from different sources, including the reporting and learning system and studies such as this one from Dr Foster. This will enable trends and patterns to be spotted, as well as identifica-

tion of priorities for developing ways of reducing patient risks.

To make a highly effective and valued NHS safer for patients needs a concerted effort across a range of organisations and staff across the NHS. The National Patient Safety Agency is committed to making this happen.

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Competing interests: RT is an executive director of the National Patient Safety Agency.

- 1 Aylin P, Tanna S, Bottle A, Jarman B. Dr Foster's case notes. How often are adverse events reported in English hospital statistics? *BMJ* 2004;329:369. (14 August.)
- 2 Vincent C, Neale G, Woloshynowych M. Adverse events in British hospitals: preliminary retrospective record review *BMJ* 2001;322:517-9.
- 3 Baker GR, Norton PG, Flintoft V, Blais R, Brown A, Cox J, et al. The Canadian adverse events study: the incidence of adverse events among hospital patients in Canada. *CMAJ* 2004;170:1678-86.

### Patients should be involved as partners

EDITOR—Dr Foster's case notes on adverse events in hospitals make alarming reading for patients.<sup>1</sup> However, evidence shows that involving patients as partners in decisions about and management of drug treatment acts as a safeguard against errors.

Patients who understand their drug treatment are better placed to pick up prescribing, dispensing, or administration errors. Documented examples include a vigilant mother who prevented her child being accidentally overdosed with insulin.<sup>2</sup>

Informed agreement about medicines, when risks and benefits are understood, reduces the possibility of patients varying their dose or taking “drug holidays.”

Patients with several conditions treated by different specialists risk being prescribed drugs that interact. Currently, the best safeguard is for patients themselves to have a clear picture of all the drugs they are taking.

A thorough, open discussion of medicines is more likely to include over the counter and complementary remedies, which can interact with prescribed drugs.

The initiative Ask About Medicines Week (1-6 November) promotes partnership between medicine users, carers, and health professionals and is an important contribution to improving patients' safety. We aim to achieve lasting change by encouraging better communication, improving the depth and quality of medicines information, and changing expectations so that asking questions about medicines becomes the norm. This year the campaign will include a fold out, credit card sized record card for medicines—an important safety tool. Further information is available from [www.askaboutmedicines.org](http://www.askaboutmedicines.org)

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Competing interests: None declared.

- 1 Aylin P, Tanna S, Bottle A, Jarman B. Dr Foster's case notes. How often are adverse events reported in English hospital statistics? *BMJ* 2004;329:369. (14 August.)
- 2 I stopped a nurse giving my son lethal insulin dose. *Daily Mail* 2002 May 23.

### Authors' reply

EDITOR—Our original text started with “It has been suggested that an estimated 850 000 medical errors occur ...” An editorial decision by the *BMJ* changed the text to a more definite “about 850 000 medical errors occur ...” Unfortunately, this change escaped our notice at the proof stage. [A correction has since been published.]

Our intention was to describe what information there was within hospital episode statistics on adverse events. We found a large number of events recorded within hospital episode statistics but also conclude that it is likely that they are under-recorded.

We think that hospitals should be encouraged to record such incidents. Hospital episode statistics were never designed as a reporting system for adverse events and we agree with Thomson that information from a wide range of sources is needed for an accurate picture of patient safety.

We concur with Shaw et al that involving patients as partners in decisions about medicines may act as a safeguard against medication errors, but hospital episode statistics offer little information on medication. Our analysis did not include deaths as it would be difficult to ascribe any death to an adverse event on the basis of the limited information available within the data.

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Competing interests: PA and AB are funded by a grant from Dr Foster.

Dr Foster is an independent research and publishing organisation created to examine measures of clinical performance.

- 1 Correction. Dr Foster's case notes: How often are adverse events reported in English hospital statistics? *BMJ* 2004;329:547. (4 September.)

## The prince and the professor

### Integrated approach is needed

EDITOR—The Prince of Wales's keynote speech to the joint symposium, which this foundation, the National Cancer Research Institute, and four of the United Kingdom's leading cancer charities (Marie Curie Cancer Care, Bristol Cancer Help Centre, Macmillan Cancer Relief, and Breakthrough Breast Cancer) held in June, attracted considerable media attention.<sup>1,2</sup> Much of the interest was generated by inaccurate and misleading reports of the speech.

We all want to understand what works and what doesn't, whether that be conventional, complementary, or alternative approaches to cancer.

As the Prince of Wales pointed out, if up to 80% of patients with cancer try complementary or alternative treatments after diagnosis then surely it makes sense to investigate their efficacy. The report by the Science and Technology Select Committee on Complementary and Alternative Medicine in December 2000 recommended that the Department of Health should provide dedicated research funding in this area to develop "centres of excellence." It has been good to see that, in response, the Department of Health has made funding available (particularly in its endeavour to build up research capacity), but more needs to be done.

The National Cancer Research Institute's establishment of a special interest group on research into complementary therapies is a significant step forward in cancer and one that this foundation strongly supports. As the Prince of Wales said, it is essential to adopt a collaborative approach to cancer research—one that takes into account all methods used by patients with cancer.

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Competing interests: The Prince of Wales, is the president of the Foundation for Integrated Health.

- 1 Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)
- 2 Prince of Wales. Speeches and articles: health. Available at: [www.princeofwales.gov.uk/speeches/health\\_24062004.html](http://www.princeofwales.gov.uk/speeches/health_24062004.html) (accessed 1 Oct 2004).

### Which emperor is naked?

**EDITOR**—The crux of Baum's argument seems to be that the Prince of Wales should not be advising people to embrace "unproved" therapies.<sup>1</sup> Baum seems to take particular exception to the Prince of Wales's recent show of support for the so called Gerson therapy, a cancer treatment based on vegetable juices and coffee enemas.

The Gerson therapy is unproved in that it has not been subjected to systematic study. Whether it is of broad benefit to cancer patients is simply not known. Was it so wrong for the Prince of Wales to call for more study in this area? But, even before the evidence is in, Baum seems to dismiss nutritional therapy out of hand and describes the experience of patients with cancer who are apparently cured by it as an "urban myth." So far as the potential benefits of a treatment are concerned, absence of evidence does not necessarily mean evidence of absence.

Baum's views on naturally oriented cancer treatments seem to be based not on scientific objectivity (as he seems to assert) but prejudice. It is perhaps ironic that he indirectly cautions the Prince of Wales about letting his personal beliefs prejudice his advice.

A strong subtext in Baum's letter is the notion that conventional cancer treatments are based on sound scientific ground. But is this really so? Chemotherapy is often recommended for several types of cancer for which there is no clear evidence of benefit. Currently, cancer affects about one in three of the population and kills one in four. These bald statistics mean that the great majority of people diagnosed with cancer will die from it. This is hardly a ringing endorsement of conventional cancer treatment.

The dawn of the information age and a rising desire for self empowerment mean that, like it or not, people are becoming increasingly knowledgeable about the principles, practice, and politics of medicine. More and more, it seems, they are growing cautious of conventional medicine and "expert" opinion. I suspect Baum's views will do little to restore people's faith in these things. Varman congratulates the professor on having the courage to point out that the emperor has no clothes.<sup>2</sup> Perhaps he might like to clarify which emperor he is referring to?

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Competing interests: None declared.

- 1 Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)
- 2 Varman S. Bravo! Electronic response to: An open letter to the Prince of Wales. *bmj.com* 2004. <http://bmj.bmjjournals.com/cgi/eletters/329/7457/118?#66224> (accessed 1 Sep 2004).

### With respect, Professor Baum, you've got it wrong

**EDITOR**—In his personal view on the Prince of Wales's speech, Baum takes the view that only evidence based practices should be used, such as those of orthodox medicine.<sup>1</sup> Brighthope reminds us that 85% of medical treatments are not supported by solid scientific evidence and only about 1-5% of articles published in medical journals are "scientifically sound," concluding that poor medical evidence supports most medical practices, including surgery (Baum's specialty).<sup>2</sup> Accusing complementary and alternative medicine of being unproved is hypocritical.

The Prince of Wales did not promote any alternative treatments. Rather, he mentioned examples of what he had heard from patients who used juices or the Gerson diet to highlight the importance of looking at the evidence of such anecdotal reports.

Baum has "much time for complementary and alternative medicine that offers improvements in quality of life or spiritual solace." Perhaps he has difficulty believing that it may also have biological actions and cure disease (the domain of orthodox medicine)? That biological methods are the domain of medicine implies that behind the debate on complementary and alternative medicine are issues of professional power and medical autocracy, as well as ignorance and prejudice.

Some complementary and alternative therapies have side effects, can be dangerous, and are a waste of money, effort, and energy. But until that can be said with confidence, we cannot take away from patients the increased hope that such treatments can provide or their right to decide what their treatment will include. If all were great with orthodox medicine, would patients need to turn elsewhere?

Our duty and responsibility is to protect patients from harm and provide more choice and broaden the limits of medicine by integrating complementary therapies that are potentially important in managing illness.

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Competing interests: AM was present at the conference where the Prince of Wales delivered his speech.

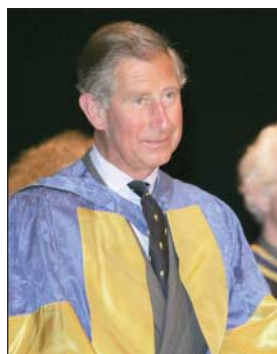
- 1 Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)
- 2 Brighthope I. Do you trust orthodox medicine and doubt complementary therapies? Some observations about proven therapies and scientific evidence in medicine. [www.thegreenline.com.au/Resources/Brighthope.htm](http://www.thegreenline.com.au/Resources/Brighthope.htm) (accessed 1 Sep 2004).

### With respect, professor, the Prince of Wales is not so wrong

**EDITOR**—Baum's open letter criticised the unproved alternative therapies that Prince Charles was endorsing.<sup>1</sup>

Why is food seen as alternative? Although 13 glasses of carrot juice and coffee enemas may be yet scientifically unproved, food as a remedy for chronic disease is not. My father is working on a product that involves fruit on the basis of his own theories of carcinogenesis. But of course he can't claim that it kills cancer cells because it is a food supplement and therefore not regarded as medicinal.

Baum thinks that high profile figures making sweeping statements on matters they are not qualified in is not helpful, but people are dying, so isn't the sharing of thoughts beneficial, however unfounded? Baum himself has criticised orthodox medicine, so maybe he would agree that the so called alternative therapies working in conjunction with so called orthodox treatments should be given a chance? The body is evolved to metabolise natural compounds not synthesised drugs, so shouldn't nature have a turn, at the very least to work in a complementary manner?



Prince Charles

TM ROOKE/REX

I believe the Prince of Wales wants to help. He is the president of the Foundation for Integrated Health and a campaigner for remedies. He is looking ahead and embraces change and chances in the hope of saving lives.

Patients with cancer hang on to Baum's every statement—he should respect the work of others who can prove their findings.

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Competing interests: BKP's father is Professor Gerry Potter, a cancer expert at Leicester De Montfort University.

<sup>1</sup> Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)

### Heretics unite

EDITOR—Well done Michael Baum, you deserve a knighthood at the very least for putting your head on the block yet again and having the courage to say what most of us believe, but usually feel too cowardly to express in the presence of the Royals.<sup>1</sup> See you in the Tower.

From your fellow heretic.

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Competing interests: LF is a known collaborator of Michael Baum.

<sup>1</sup> Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)

### Science is worth the effort

EDITOR—I write in response to Baum's personal view.<sup>1</sup> As a doctor struggling to learn the art of molecular biology (through which doctors and scientists seek to understand illnesses and develop new treatments), I can attest to the huge complexity of the subject. Science is difficult. Science requires great effort on the part of those who wish to understand it.

Because it is so difficult, I fully understand the human temptation to seek understanding of the world's mysteries in a more intuitive, simpler way. Alas, such oversimplifications only reveal mirages. Medical science, like all technologies, relies on the cold analysis of hard data: would we have mobile phones and space-ships if physicists had ignored the facts in front of them?

In contrast with professional scientists, most of us, the prince and his defenders included, do not have the ability, training, skills, or years of effort fully to understand the complexities of science. Contradiction

of scientific research, without the foundation of extensive scientific education is prejudiced folly.

Arrogant are those, whoever they are, who discount the lengthy application of powerful scientific brains, because they are unable to understand the complexities of the subject. Facts are facts, however hard to grasp.

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Competing interests: None declared.

<sup>1</sup> Baum M. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. *BMJ* 2004;329:118. (10 July.)

### Summary of responses

EDITOR—Professor Baum's open letter in response to the Prince of Wales's speech at a research symposium on complementary therapies and cancer care at the Royal College of Obstetricians and Gynaecologists sparked off some 80-odd responses.<sup>1</sup> Practitioners of conventional medicine and of alternative and complementary medicine (sometimes both), former and current patients (who have much to say to recommend both approaches), journalists, social workers, clerics, and scientists worldwide all responded.

Those who agree unanimously with Professor Baum reject Prince Charles's proposals in no uncertain terms. But a count reveals that they are not the majority—and neither are those who fervently defend exclusively complementary approaches to cancer care. Most correspondents, regardless of which side of the fence they may be on, interpret the prince's speech as advocating an integrated approach, not the abandonment of reason, asking for complementary and alternative medicines to undergo the same rigorous trials as conventional treatments. The prince and the professor in the same boat?

Some correspondents are concerned that the media bias public opinion through a lack of critical reporting and by giving certain fashionable treatments and celebrities more column inches than conventional scientists, thus giving them a prominence they do not deserve. Maybe alternative health columns should be published with a health warning?

Correspondents who have personal experience of all manner of complementary and alternative therapies are particularly convinced that these may be tomorrow's science and are mostly in favour of conducting trials. Many correspondents have no objection to rigorous scientific testing but point out that funding may be a

problem or that such funds might be used more effectively elsewhere.

A few correspondents think that the two directions cannot be integrated and complementary therapies can therefore not be trialled. Their measurements are different and cannot satisfy the criteria of modern medicine, although they may coexist comfortably as long as neither tries to claim supremacy.

Several correspondents remind us that traditional Chinese medicine, ayurveda, and many other traditional medical systems around the world that we today call "complementary" or "alternative" are in fact thousands of years old, whereas our own "conventional" approach has been around for a mere few hundred years. Consequently, the debate about what science is and about scientific methods, objectivity, deduction, reproducibility, generating hypotheses, and the arbitrariness of statistical measures forms most of the debate. There are no proved results in science as all facts are to a greater or lesser degree provisional.

Or, to quote Krishna Badami, a specialist in transfusion medicine: "Today's orthodoxy could well end up as tomorrow's heresy and vice versa."

**Birte Twisselmann** *technical editor*  
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Competing interests: None declared.

<sup>1</sup> Electronic responses. An open letter to the Prince of Wales: with respect, your highness, you've got it wrong. <http://bmj.bmjjournals.com/cgi/eletters/329/7457/118> (accessed 30 Aug 2004).

### Human touch could be saved by using robots

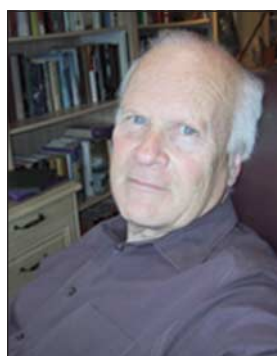
EDITOR—When I had surgery at one of the best hospitals in the United States, I saw my surgeon twice for two minutes. After the first day, I rarely saw a nurse. But when I walked around, the nurses were busy documenting information on computers. In the meantime when my fellow patients found out I was a doctor, they barraged me with questions about their illnesses and operations.

In these days when the bureaucrats won't pay you until you write every tiny detail down, may I suggest that we use robots to document the details, so we get paid, rather than get the robots to allow doctors to check and interact with their patients after surgery?<sup>1</sup> Let the doctors and nurses do what they went into medicine for in the first place: to care for people in those low tech and low paying jobs such as talking, rubbing where it hurts, and giving sympathy and comfort to the families who visit.

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Competing interests: None declared.

<sup>1</sup> Dobson R. Meet Rudy, the world's first "robotoc." *BMJ* 2004;329:474-b. (28 August.)



Professor Baum